

Given the information in this investigation be prepared to discuss the following:

What do you think were the contributing factors to the crash?

What MCFRS guidelines would have applied to the circumstances of this crash?

Volunteer Chief and Fire Fighter Die After Being Ejected During a Rollover Crash—Virginia



Death in the Line of Duty...A summary of a NIOSH fire fighter fatality investigation

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Executive Summary

On July 26, 2010, a 59-year-old male volunteer fire chief (victim 1) and a 67-year-old male volunteer fire fighter (victim 2) died from injuries sustained after they were ejected when their engine was involved in a crash and rolled over. The engine, with its lights and siren activated, was responding to a mutual aid residential structure fire. The crash occurred when the engine entered an intersection with a red light and was struck by a sport utility vehicle. The engine rolled over and both victims were ejected. Victim 1 was transported to a local hospital and pronounced dead. Victim 2 was pronounced dead at the scene. Both victims were reported to not be wearing their seat belts.



Crash photo.
(Courtesy of the Franklin News Post.)

Introduction

On July 26, 2010, a 59-year-old male volunteer fire chief (victim 1) and a 67-year-old male volunteer fire fighter (victim 2) died from injuries sustained after they were ejected when their engine was involved in a crash and rolled over while responding to an emergency. On July 27, 2010, the U.S. Fire Administration notified the National Institute for Occupational Safety and Health (NIOSH) of this incident. On August 10-13, 2010, a general engineer and a safety and occupational health specialist from the NIOSH Fire Fighter Fatality Investigation and Prevention Program traveled to Virginia to investigate this incident. The NIOSH investigators interviewed the acting fire chief, town manager, and assistant town manager. The NIOSH investigators also met with a representative of the Virginia Department of Fire Programs and spoke with the Virginia State Police. The NIOSH investigators visited the incident scene and conducted interviews with officers and fire fighters of the involved department, the county coroner, and the director of the surrounding county department of fire and emergency medical services. The NIOSH investigators examined and photographed the fire engine involved in this incident at the town's secure storage facility. The NIOSH investigators reviewed the fire department's standard operating guidelines, the victims' training records, and dispatch audio tapes.

The state of Virginia criminal and traffic law, chapter 8, article 2, section 46.2-829¹, describes the right-of-way requirements for approach of fire fighting vehicles. The right-of-way law states, "Upon the approach of any emergency vehicle as defined in 46.2-920 giving audible signal by siren, exhaust whistle, or air horn designed to give automatic intermittent signals, and displaying a flashing, blinking, or alternating emergency light or lights as provided in 46.2-1022 through 46.2-1024, the driver of every other vehicle shall, as quickly as traffic and other highway conditions permit, drive to the nearest edge of the roadway, clear of any intersection of highways, and stop and remain there, unless otherwise directed by a law-enforcement officer, until the emergency vehicle has passed. This provision shall not relieve the driver of any such vehicle to which the right-of-way is to be yielded of the duty to drive with due regard for the safety of all persons using the highway, nor shall it protect the driver of any such vehicle from the consequences of an arbitrary exercise of such right-of-way." Chapter 8, article 15, section 46.2-920, describes emergency vehicle exemption from regulations in certain situations, such as those involving steady or flashing red traffic signals: "Proceed past any steady or flashing red signal, traffic light, stop sign, or device indicating moving traffic shall stop if the speed of the vehicle is sufficiently reduced to enable it to pass a signal, traffic light, or device with due regard to the safety of persons and property."

Training and Experience

The victims' fire department requires members to attain a minimum level of training, consisting of Fire Fighter I, within 1 year of membership. Driver operators must have a minimum of 1 year of experience, complete Fire Fighter I and Emergency Vehicle Operators Course (EVOC), and pass a road test supervised by the chief of the department.

The table lists the training and experience of the primary fire fighters involved in the incident.

Fire Fighter	Training Courses	Years Experience
Victim 1	Emergency Vehicle Operations 1, 2, 3 Driver/Operator-Pumper, -Aerial Fire Fighter I, II Instructor 1, 2; Train the Trainer, Adjunct Instructor, Hazardous Materials Awareness and Operations Trench, Rope, Confined Space Vehicle Rescue Awareness ICS-100, -200, -195, -700 NFA Strategy and Tactics CPR; First Responder Medical Training	33
Victim 2	Emergency Vehicle Operations 1, 2, 3 Driver/Operator-Aerial Fire Fighter I, II Hazardous Materials Awareness and Operations ICS-100, -195, -700 CPR; First Aid	47

Note: Both victims' training records met the criteria for National Fire Protection Association (NFPA) 1001 Standard for Fire Fighter Professional Qualifications², which requires completion of Fire Fighter I and Fire Fighter II courses.

Equipment and Personnel

The engine involved in this incident was a 1988, 1,250-gpm custom engine with a 1,000-gallon water tank ([see Photo 1 and Photo 2](#)). The fire department purchased this pumper as a used vehicle from another department approximately 10 years prior to the incident. The gross vehicle weight rating of the engine was 37,180 lbs. The engine had an automatic transmission, diesel engine, air-actuated drum brakes with no auxiliary braking devices, and two axles with six wheels (two in the front and four in the rear). The engine had an electronic siren, air horns, and emergency lights. The engine had seat belts for the driver and passenger. The water tank was inspected at the town's storage facility and appeared intact, although the configuration of the tank baffles could not be verified at the time of the inspection. The two victims were the only personnel on board the engine at the time of the crash.

There were no recorded or reported complaints from members of the department regarding braking, steering, or performance with the engine.



Photo 1. Side view of the apparatus, post incident at the storage facility.

(NIOSH photo.)



Photo 2. Front view of apparatus post incident with top of cab sheared off by crash impact. (NIOSH photo.)

Timeline

The timeline for this incident is limited to the initial response of the apparatus to a mutual aid structure fire on July 26, 2010. The driver (victim 1) and the passenger (victim 2) responded to the station to pick up the engine and had driven approximately 1.8 miles when the crash occurred.

- **1616 Hours**
Structure fire in neighboring jurisdiction was dispatched. Comments from the callers indicated a house fire with an explosion, heavy smoke and fire.
- **1619 Hours**
Engine was dispatched as third due mutual aid for the fire incident.
- **1624 Hours**
Engine en route.
- **1630 Hours**
Engine involved in a rollover crash with 2 civilian vehicles at an intersection.

Personal Protective Equipment

Victim 1 (driver) was wearing his bunker pants, boots, and T-shirt. Victim 2's personal protective equipment was not reported.

Weather and Road Conditions

The fire truck was traveling downgrade toward a traffic light-controlled intersection on a four-lane state highway with a posted speed limit of 35 mph. The road surface was asphalt, in good condition, and was dry.

At the time of the crash (approximately 1630 hours), the weather was clear with an approximate temperature of 90°F. The relative humidity was 57% and the wind was calm.³

Investigation

On July 26, 2010, a 59-year-old male volunteer fire chief (victim 1) and a 67-year-old male volunteer fire fighter (victim 2) died from injuries sustained in a fire engine rollover crash, responding to a mutual aid residential structure fire. The engine was dispatched to assist on a mutual aid house fire at 1619 hours. Both victims responded to the station and at 1624 hours were en route on the engine. The engine was responding with its lights and siren activated.

A county fire marshal was responding with lights and siren to the same mutual aid structure fire, traveling east on the same road just ahead of the victims' engine. The fire marshal stopped at the red light and then successfully traveled through the intersection in the direction of the response ([see Photo 3](#)). Note: The fire marshal told NIOSH investigators that he was 5-10 seconds in front of the victims' engine, and he estimated that the engine would have caught the same red light as his vehicle. The fire marshal did not see the SUV strike the engine, and he was not aware of the crash until he heard a dispatch for a motor vehicle accident involving a fire truck that was dispatched at 1633 hours.

The engine had traveled approximately 1.8 miles when it encountered the red light at the intersection. The engine entered the intersection and was struck on its left rear side by an SUV that was entering from the north (left) side of the intersection. The engine struck the curb on the south (right) side and then rolled over; both victims were ejected. The engine rested on its top facing northwest and impacted a car in the opposing lane ([see Photo 4](#)).

The county director of public safety was nearby and responded to the crash scene. He stated during interviews that he was one of the first emergency responders on the crash scene and, after arriving, he provided emergency medical care to victim 1 who still had a pulse but was unresponsive and suffering from a head wound and general trauma. Victim 1 was transported to a local hospital and pronounced dead. Victim 2 was pronounced dead at the scene. The county coroner reported the

cause of death for both victims as blunt force trauma. Both victims were reported to not be wearing their seat belts.



**Photo 3. Intersection where crash occurred (same direction of travel as incident apparatus, eastbound).
(NIOSH photo.)**



**Photo 4. Crash scene.
(Photo courtesy of the Franklin News Post.)**